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CONCERNING THE NAMES AND STATUS OF CERTAIN NORTH AMERICAN MEMBERS OF THE GENUS PHYCIODES

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In his "Synonymic List of the Nearctic Rhopalocera," 1964, dos Passos lists *pulchella* Bdv. (556c, p. 82) as a subspecies of *tharos* Drury, with the more familiar *pascoensis* Wright as a synonym. If the name *pulchella* actually applied to a western entity, as Boisduval apparently believed it did, this listing would be the valid one.

However, a study of all available references has convinced me that the name *pulchella* cannot apply to any western population of *Phyciodes tharos*. The name *pulchella* first occurs (Boisduval, 1852) as follows (my translation from the original French):

> 49. *Melitaea pulchella*
>
> Pap. Tharos. Drury. Ins. I. pl. 21. f. 5.6.
>
> It occurs in a large part of California. This species should not be confused with *tharos* Cramer that also (equally) inhabits the United States. It is well to note also that *morpheus* Cramer, figured on plate 101, is identical in every respect with that which was previously figured under the name *tharos*.

Since this is an indication that the figures cited depict what Boisduval had in mind as *pulchella*, and since there is no other description, the insect from which the figures were made may be regarded as the type of *pulchella* Boisduval. Drury, in 1773, could scarcely have had material from California. Edwards (1864) states that Drury's specimens of *tharos*, on which his plates were based, came from New York. If this is true, no figures of these New York specimens can form the basis of the name of an entirely western population. It seems clear that Boisduval's name, *pulchella*, is a synonym of nominate *tharos* Drury, and cannot apply to the insect we have known as *pascoensis* Wright.

It is difficult to know what Boisduval had in mind when he proposed *pulchella.* No population of *tharos* is found over "a large part" of California. If *tharos* occurs in California, it is only in the northeastern corner of the state. The dark *Phyciodes* of California is *campestris* Behr (1863), at that time undescribed. It is possible that Boisduval confused *tharos* and *campestris,* but in no way did he suggest a name for what we now know as *campestris.* It seems unlikely that Boisduval had specimens of what he called *pulchella,* or he would not have needed to give that name to a figure.

In 1869 Boisduval (Ann. Soc. Ent. Belg. 12:20, no. 50) mentions *Melitaea pulchella* again:

> 50. *Melitaea pulchella,* Boisd.
> Papilio Tharos, Drury, Ins. I. Pl. 21, f. 5-6.
> Well scattered (assez répandue, or distributed) in central California. This species should not be confused with *Tharos* Cramer which inhabits certain parts of North America.

And again in 1869, Boisduval (ibid. 12:53, no. 37) writes of *Melitaea tharos* Boisd. et Leconte (!?), gives *Argynnis tharossa* Godt., as a synonym, and again says of *tharos* that it "occurs also in certain localities in California."

And finally, in the same work, next number (no. 38) he lists *Melitaea cocyta* Cramer (now considered a synonym of *tharos*) with *Argynnis morphea* Godt. as a synonym. Of *morphea* he says, "It was captured at Los Angeles."

These references indicate that Boisduval persisted in thinking (a) that *pulchella* was different than *tharos,* and (b) that both *tharos* and *pulchella* occurred in California.

It is interesting to note that neither of the common lowland California species of *Phyciodes* (*mylitta* and *campestris*) were among the material sent to Boisduval by Lorquin and described by Boisduval in 1852. This strengthens the inference that the earlier Lorquin collections were made in the mining country of the Sierra Nevada, rather than in the Bay Region of California. It is suggested that caution be used in fixing San Francisco as the type locality of species described by Boisduval in 1852.

In his Synonymic List (1964) dos Passos listed *mata* Reakirt as a subspecies of *mylitta* Edwards, with *barnesi* Skinner as a synonym, but more recently (Journ. Lepid. Soc., 23:120) he places *mata* as an aberration of *P. campestris camillus* Edwards (569b). The checkered history of this name, given to a very unusual appearing single specimen, is interesting. Reakirt described it as a bleached specimen which nevertheless he considered to represent a distinct species (Reakirt, 1866). Strecker, (1874) says of this type of *mata,* "Female. Expands 1½ inches."

Brown (1966) devotes an illuminating paragraph to the *mata-pallida* problem. He considers the type of *mata* to be albinic rather than faded (an opinion expressed earlier, by Strecker). Brown states, "if it is *mylitta,* it is unusually small." From this I judge that Strecker's measurement of "1½ inches" is very approximate, since this is very *large* for a *mylitta.*

Brown (loc. cit.) finds it impossible to decide whether *mata* belongs to the concept of *mylitta,* or to *camillus.* This seems to have been the reaction of all who have discussed this specimen. Reakirt thought it faded; Strecker and Brown thought it not faded; Barnes & McDunnough (1916) thought it to be *mylitta,* both worn and faded when taken. None seems to agree. The recent action by dos Passos disposes of the name as populational. This seems far better than to use the name *mata* to affect other better established names.

Concerning the status of the names *pallida* Edwards and *barnesi* Skinner, which have traditionally been associated with *mylitta* Edwards, there is what appears to be good biological and distributional evidence that *mylitta* and *pallida* are distinct species, with *barnesi* a weakly differentiated subspecies of *pallida.* Here is the evidence: *pallida* and *barnesi* are one-brooded. *Mylitta* is holodynamic wherever found, breeding continuously as long as weather conditions permit. In Utah and northwest into Washington, both one-brooded populations (*pallida-barnesi*) and multi-brooded populations (*mylitta*) are sympatric and separable when once known by subtle markings as well as by size. The *pallida-barnesi* complex are consistently larger insects, and have a dark spot in cell Cu_2 of the forewings that shows on both upper and lower surfaces, in most specimens. In addition, the females of *pallida-barnesi* show a more or less complete row of outer crescents on the underside of the hind wings, these crescents creamy or buffy, and no one of them much darker than the others.

P. mylitta averages smaller, is multi-brooded over its entire range, lacks the dark Cu_2 spot in most specimens and the females, as in the males, have one of the crescents on the underside much darker than the others, the typical "crescent spot." Populations of *pallida-barnesi* and of *mylitta,* when sympatric, are not synchronic. The single brood of the *pallida* complex peaks at a different time than any of the several broods of *mylitta.*

These pieces of evidence convince me that *mylitta* Edwards 1861 should be considered one species, and that *pallida* Edwards 1864 should be regarded as a separate species, with *barnesi* Skinner 1897 as a western subspecies of *pallida.*

The type locality of *pallida* Edwards was fixed by Brown (1966) as Flagstaff Mountain, Boulder Co., Colorado. The stated type locality of *barnesi* Skinner is Glenwood Springs, Garfield Co., Colorado, far west of the Continental Divide and climatically allied to Utah. *P. pallida barnesi* extends south from the type locality to northern Arizona and northwesterly to Washington and southern British Columbia, east of the Cascades. Over much of this range it occurs with *mylitta*. I have examined sympatric material of these species. Lack of similar material from the higher eastern parts of Colorado suggests that true *mylitta* either does not extend there, or is rare there, or that the distinctions between *mylitta* and *pallida* may have been overlooked. I favor the first hypothesis. Plentiful material that I have examined from eastern Colorado seem to me to be all *pallida*. Genitalic distinctions are either minor or nearly lacking between these two species but may be demonstrated by further studies.

Changes in the listings of our *Phyciodes* have been frequent but the following seem justified:

566. *tharos* (Drury) 1773
  a. *t. tharos* (Drury) 1773
    pulchella (Boisduval) 1852
    (return to former synonymy)
  b. *t. arctica* dos Passos 1935
  c. *t. pascoensis* Wright 1905

and: 571.1 *pallida* (Edwards) 1864
  a. *p. pallida* (Edwards) 1884
  b. *p. barnesi* Skinner 1897

572. *mylitta* (Edwards) 1861

The status of any populations that may belong under *mylitta* does not form a part of this paper, but will be treated separately by Mr. David Bauer.

I am grateful to Mr. David Bauer for critical review of the manuscript and for many valuable suggestions. He has been kind enough to allow me to read the manuscript of a forthcoming paper in which he expresses the same conclusion regarding the specific status of *Phyciodes pallida* (Edwards).

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